Integrating the Indian Knowledge System (IKS) and ancient education: insights and implementation under NEP 2020

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Abstract

Indian Knowledge Systems and Ancient (Vedic) education are not merely remnants of a bygone era; rather, they constitute dynamic and sophisticated epistemological frameworks that shaped intellectual inquiry, pedagogy, and social organization for millennia. Ancient Indian education was characterized by an integrated approach to knowledge, wherein disciplines such as philosophy, mathematics, astronomy, medicine, linguistics, arts, and ethics were studied as interconnected domains.

The Indian Knowledge System and Ancient (Vedic) education constitute a vast and sophisticated intellectual tradition that has evolved over centuries, encompassing diverse domains such as philosophy, science, mathematics, medicine, linguistics, arts, ecology, governance, and ethical thought. Recognizing the enduring relevance of these indigenous knowledge traditions, the National Education Policy (NEP) 2020 explicitly advocates their systematic integration into mainstream education to foster holistic, experiential, and value-oriented learning. Consequently, there is a renewed interest in indigenous and traditional knowledge systems that are rooted in local cultures, ecological wisdom, and moral frameworks. Such knowledge systems offer alternative epistemological perspectives that emphasize harmony between humans and nature, interconnectedness of disciplines, experiential learning, and value-based living. Through a synthesis of theoretical perspectives, pedagogical models, illustrative practices, and policy-oriented recommendations, the study argues that the meaningful integration of IKS has the potential to significantly enrich contemporary education while upholding scientific rigor, inclusivity, and global relevance. This paper undertakes a comprehensive examination of the philosophical foundations of IKS and Vedic pedagogical principles, critically analyzes the curriculum-related provisions of NEP 2020, and proposes coherent and practical strategies for implementation at the school level.

Keywords: Indian Knowledge System (IKS), Vedic education, NEP 2020, Indigenous pedagogy, Holistic education

Introduction

Indian Knowledge Systems and Vedic education are not merely remnants of a bygone era; rather, they constitute dynamic and sophisticated epistemological frameworks that shaped intellectual inquiry, pedagogy, and social organization for millennia. Ancient Indian education was characterized by an integrated approach to knowledge, wherein disciplines such as philosophy, mathematics, astronomy, medicine, linguistics, arts, and ethics were studied as interconnected domains. Knowledge was pursued not only for practical utility but also for self-realization, social harmony, and moral development. This holistic conception of education stands in contrast to the compartmentalized and fragmented structure that characterizes much of contemporary schooling.

Globally, education systems are responding to unprecedented challenges such as environmental degradation, social fragmentation, technological disruption, and ethical uncertainty. These challenges have exposed the limitations of purely utilitarian and market-driven educational models. Consequently, there is a renewed interest in indigenous and traditional knowledge systems that are rooted in local cultures, ecological wisdom, and moral frameworks. Such knowledge systems offer alternative epistemological perspectives that emphasize harmony between humans and nature, interconnectedness of disciplines, experiential learning, and value-based living. The resurgence of indigenous knowledge in education is therefore not an exercise in cultural nostalgia, but a strategic response to the need for sustainability, inclusivity, and ethical depth in modern education.

In the Indian context, this global reorientation finds a clear and structured policy articulation in the National Education Policy (NEP) 2020. The policy represents a landmark shift in educational thinking, advocating for an education system that is deeply rooted in Indian ethos while remaining open, scientific, and globally engaged. NEP 2020 explicitly recognizes the Indian Knowledge System (IKS) as a foundational resource for educational renewal and calls for its systematic integration into curricula across all stages of education. By emphasizing holistic development, experiential learning, multidisciplinary approaches, and ethical grounding, the policy aligns closely with the philosophical and pedagogical principles inherent in India's ancient educational traditions.

The Gurukul system exemplified these pedagogical ideals through its emphasis on community living, simplicity,

discipline, and holistic development. While the residential and social structure of the Gurukul system may not be directly replicable in contemporary educational settings, its underlying principles remain profoundly relevant. Learner-centered instruction, mentorship, experiential learning, ethical education, and the integration of cognitive and moral development are pedagogical insights that resonate strongly with modern educational theories and practices. Contemporary frameworks such as constructivism, experiential learning, and socio-emotional learning echo many of the core principles embedded in Vedic pedagogy.

A distinctive feature of ancient Indian education was the centrality of the teacher-student relationship. Learning was personalized, dialogic, and rooted in mutual respect, with the teacher serving not merely as an instructor but as a mentor and moral guide. Education was thus viewed as a transformative process aimed at the cultivation of wisdom (jnana), character (charitra), and social responsibility, rather than the accumulation of information alone.

Against this backdrop, the integration of Indian Knowledge Systems and Vedic educational principles into the school curriculum assumes critical importance. NEP 2020 envisions such integration not as an isolated or symbolic inclusion of traditional content, but as a meaningful and systematic infusion of indigenous knowledge across disciplines. This approach seeks to enrich conceptual understanding, foster interdisciplinary thinking, and promote cultural rootedness without compromising scientific rigor or global relevance. By embedding IKS within subjects such as mathematics, science, social sciences, languages, and arts, education can become more contextualized, engaging, and ethically grounded.

However, the integration of IKS into school education also presents significant challenges. These include the risk of superficial or romanticized representations of traditional knowledge, the lack of well-trained teachers, limited availability of authentic and age-appropriate learning resources, and the need to balance indigenous perspectives with universal scientific standards. Addressing these challenges requires careful curriculum design, robust teacher education programs, appropriate assessment frameworks, and continuous academic research. It also necessitates sensitivity to India's vast regional, linguistic, and cultural diversity to ensure inclusivity and relevance.

In this context, the present paper seeks to elaborate a comprehensive framework for integrating the Indian Knowledge System and Vedic education into the school curriculum under NEP 2020[10]. The study examines the conceptual and philosophical foundations of IKS, explores pedagogical models suitable for contemporary classrooms, and analyzes implications for teacher preparation and professional development. It further addresses the need for assessment reforms aligned with holistic learning objectives and critically examines the challenges and opportunities associated with implementation. Drawing upon theoretical perspectives, illustrative practices, and policy analysis, the paper proposes actionable pathways for embedding IKS meaningfully within school education.

It argues that the thoughtful incorporation of Indian Knowledge Systems into school education has the potential to foster intellectual depth, ethical awareness, cultural continuity, and ecological consciousness among learners. Ultimately, such an integrative approach can help prepare students not only for academic and professional success, but also for responsible and reflective participation in an increasingly complex and interconnected world.

Indian Knowledge Systems (IKS)

A defining feature of IKS is its holistic worldview. Knowledge was not compartmentalized but seen as interconnected, integrating material, moral, and spiritual dimensions of life. Learning was value-oriented, aiming at the development of wisdom (jnana) rather than mere information acquisition. Another key characteristic is contextual relevance. Indian Knowledge Systems refer to a vast and diverse body of knowledge developed in the Indian subcontinent across disciplines such as philosophy (darshana), mathematics (ganita), astronomy (jyotisha), medicine (ayurveda), linguistics (vyakarana), logic (nyaya), ecology, architecture (vastu shastra), arts, music, and governance (arthashastra). These systems evolved through observation, reasoning, experimentation, and ethical reflection. Knowledge was adapted to geography, ecology, social needs, and cultural practices.

Ancient (Vedic) education

Ancient education represents the earliest organized educational framework in India. The Gurukul system fostered close teacher-student relationships, encouraging intellectual humility, ethical conduct, and lifelong learning. Rooted in the Vedas, Brahmanas, Aranyakas, and Upanishads, it emphasized oral transmission, memorization, inquiry, dialogue, and self-discipline. The educational objectives were guided by the four purusharthas dharma (ethical living), artha (material prosperity), kama (emotional fulfillment), and moksha (liberation). This framework ensured balanced development of intellectual, emotional, social, and spiritual faculties. Pedagogically, Vedic education employed methods such as recitation, debate (shastrartha), storytelling, and experiential learning. These approaches resonate with modern learner-centered pedagogies.

NEP 2020: vision and provisions for IKS integration

The policy explicitly recognizes the importance of IKS in curriculum design, pedagogy, and teacher education. Key provisions include curriculum flexibility, interdisciplinary learning, experiential pedagogy, multilingual education, and teacher empowerment. NEP 2020 [10] calls for the inclusion of local knowledge, traditions, and cultural practices across subjects rather than as isolated content. NEP 2020 represents a transformative shift in Indian education policy. It envisions an education system rooted in Indian ethos while aligned with global standards. The policy also emphasizes the development of high-quality textbooks and digital resources showcasing Indian contributions to science, mathematics, medicine, and

arts. Teacher education institutions are encouraged to incorporate IKS modules to build conceptual clarity and pedagogical competence. By institutionalizing IKS, NEP 2020 seeks to restore intellectual self-confidence, promote cultural continuity, and foster innovation.

Rationale for integrating Indian Knowledge Systems (IKS) and Vedic education

In the context of rapid globalization, technological advancement, and sociocultural transformation, education systems must respond to the growing need for holistic, value-based, and contextually relevant learning. The integration of Indian Knowledge Systems (IKS) and Vedic education into the contemporary school curriculum is not merely a cultural or historical exercise but an educational imperative grounded in pedagogical, cognitive, ethical, and societal considerations. The National Education Policy (NEP) 2020 [10] recognizes this need and emphasizes the meaningful inclusion of indigenous knowledge traditions as a foundation for educational renewal. The rationale for integrating IKS and Vedic education can be examined across multiple dimensions, including cultural continuity, cognitive development, ethical formation, sustainability, and global relevance.

Cultural continuity and identity formation

Indian Knowledge Systems represent accumulated wisdom that has evolved through centuries of social, philosophical, and scientific inquiry. Introducing students to these traditions nurtures respect for cultural diversity and encourages intergenerational knowledge transmission. Such integration also aligns with NEP 2020's emphasis on rootedness and pride in India's cultural legacy, contributing to the development of confident, culturally aware citizens capable of engaging meaningfully with global cultures. Education plays a central role in shaping individual and collective identity. When curricula are disconnected from indigenous traditions, learners often experience cultural alienation, resulting in a diminished sense of belonging and self-worth. Integrating IKS enables students to engage with their civilizational heritage in a critical and informed manner, fostering cultural continuity without compromising intellectual openness.

Holistic development

IKS and Vedic education emphasize a holistic conception of knowledge that integrates cognitive, emotional, physical, and spiritual dimensions of learning. Unlike fragmented disciplinary approaches, traditional Indian education viewed knowledge as an interconnected whole. Disciplines such as mathematics, astronomy, medicine, linguistics, and philosophy were studied in relation to one another, promoting systems thinking and conceptual depth.

The study of logical systems such as Nyaya, grammatical frameworks like Paninian linguistics, and mathematical innovations such as the decimal system and zero enhances analytical reasoning and intellectual rigor. These traditions encourage inquiry, debate, and reflective thinking, aligning closely with contemporary educational goals of critical thinking and problem-solving. Integrating IKS thus strengthens cognitive development while broadening students' epistemological perspectives.

Ethical and moral development

A defining feature of Vedic education is its emphasis on ethical formation and moral reasoning. Education in ancient India was intrinsically value-oriented, guided by principles such as dharma (ethical duty), satya (truth), ahimsa (non-violence), and seva (service). These values were not taught in isolation but embedded within narratives, philosophical discourse, and daily practice. In an era marked by ethical dilemmas, social conflict, and moral ambiguity, integrating IKS offers a framework for cultivating ethical sensitivity, empathy, and social responsibility. Epics such as the Ramayana and Mahabharata, philosophical texts like the Upanishads, and teachings from dharmashastra provide rich material for ethical reflection and dialogue. Such integration complements modern citizenship education and socio-emotional learning initiatives.

Digital technologies for IKS integration

NEP 2020 emphasizes the use of technology to enhance teaching and learning, making digital integration a vital component of IKS pedagogy. Digital libraries and repositories can provide access to classical texts, commentaries, translations, and scholarly interpretations. Virtual laboratories and simulations can demonstrate traditional scientific practices, such as astronomical calculations or architectural principles, in interactive formats. Technology also supports multilingual education by enabling content delivery in regional languages, promoting inclusivity and equity. Online platforms can facilitate collaboration between schools, scholars, and practitioners, fostering communities of practice around IKS education.

Teacher preparation and professional development

Teachers are central to the successful integration of IKS and Vedic education. Without adequate preparation, curriculum reforms risk remaining symbolic rather than transformative. Teacher education programs must therefore prioritize both content knowledge and pedagogical competence related to IKS. Pre-service teacher education should include foundational courses on Indian Knowledge Systems, covering philosophical, scientific, and cultural dimensions. These courses should adopt critical and interdisciplinary perspectives, enabling teachers to engage with traditional knowledge thoughtfully and academically.

Empowering teachers as reflective practitioners and curriculum designers is essential for meaningful integration. Collaboration with traditional scholars, Sanskrit experts, Ayurveda practitioners, artisans, and community elders can enrich teacher learning and ensure authenticity. Teacher preparation must also address pedagogical strategies such as experiential learning, interdisciplinary teaching, and alternative assessment methods.

Global relevance and opportunities

Integrating IKS offers significant opportunities for educational innovation. It fosters creativity, ethical reasoning, ecological

awareness, and systems thinking competencies essential for the twenty-first century. By valuing multiple epistemologies, education becomes more inclusive and democratic. India's efforts to integrate IKS position it as a contributor to global educational thought and intercultural dialogue. Emerging pilot initiatives in Indian schools demonstrate the feasibility of IKS integration. Programs incorporating yoga, basic Ayurveda, Sanskrit education, and traditional crafts have shown positive outcomes in student engagement and well-being. Comparative examples from countries such as New Zealand and Canada, which integrate indigenous knowledge into education, further validate this approach.

Illustrations (IKS)

Illustrative practices play a crucial role in demonstrating the practical feasibility and educational value of integrating Indian Knowledge Systems (IKS) and Vedic education into contemporary school curricula. These initiatives, though diverse in scope and scale, collectively demonstrate that indigenous knowledge can be meaningfully incorporated without disrupting existing curricular structures. While policy frameworks such as NEP 2020 provide the conceptual and structural foundation, real-world initiatives at the school level offer insights into implementation strategies, learner outcomes, and contextual challenges. Emerging pilot initiatives in India, as well as comparative international examples, reveal that the integration of indigenous knowledge into formal education is both viable and pedagogically enriching. One prominent area of integration has been yoga and mindfulness education. Another significant area of pilot implementation is basic Ayurveda education, particularly in upper primary and secondary classes. Some schools have introduced modules on traditional Indian health systems, focusing on topics such as nutrition, daily routines (dinacharya), seasonal adaptation (ritucharya), and the medicinal properties of common plants. Activities such as maintaining herbal gardens on school premises enable students to engage experientially with Ayurvedic principles while also learning scientific concepts related to botany, ecology, and health sciences. These initiatives have fostered awareness of preventive healthcare, sustainability, and responsible lifestyle choices among students.

Traditional arts, crafts, and vocational practices form another important dimension of IKS integration. Schools introducing craft-based learning such as pottery, weaving, metalwork, painting, and folk music have observed increased student engagement and creativity. These practices integrate aesthetic expression with scientific principles, mathematics, and environmental awareness. Craft-based education also aligns with NEP 2020's emphasis on vocational education and skill development, bridging the gap between academic learning and practical application.

Sanskrit education has also witnessed renewed interest as part of IKS integration. Several schools have adopted conversational Sanskrit approaches rather than rote grammatical instruction, making the language more accessible and engaging. Sanskrit learning has been linked to enhanced linguistic skills, memory, and cognitive flexibility. Moreover, exposure to Sanskrit texts allows students to engage directly with primary sources of Indian philosophical, scientific, and literary traditions, fostering intellectual curiosity and cultural literacy.

Challenges in implementation

Despite the significant pedagogical, cultural, and societal benefits associated with the integration of Indian Knowledge Systems (IKS) and Vedic education into contemporary schooling, the process of implementation is fraught with complex challenges. These challenges are structural, pedagogical, epistemological, and administrative in nature, and must be addressed systematically to ensure that the integration is meaningful, academically rigorous, and inclusive. Without careful planning and sustained institutional support, there is a risk that IKS integration may remain symbolic or superficial rather than transformative.

Lack of trained teachers

Many teachers have been trained within conventional disciplinary frameworks that offer limited exposure to indigenous epistemologies. As a result, they may lack confidence or conceptual clarity in engaging with IKS content. One of the most critical challenges in implementing IKS-based education is the shortage of teachers who possess both content knowledge of Indian knowledge traditions and the pedagogical skills required to teach them effectively in modern classrooms. Teachers may rely on oversimplified narratives or textbook summaries, leading to superficial learning experiences. Addressing this challenge requires comprehensive teacher preparation programs that combine scholarly understanding of IKS with contemporary pedagogical strategies and critical perspectives.

Un availability learning resources

Existing textbooks and teaching materials often lack rigorous academic grounding or fail to contextualize traditional knowledge within modern scientific and social frameworks. The availability of authentic, high-quality, and age-appropriate learning resources poses another major challenge. In some cases, resources may romanticize or uncritically glorify the past, undermining intellectual inquiry and academic credibility. Developing standardized yet flexible learning resources that reflect regional diversity while maintaining scholarly rigor is a complex task. It requires collaboration among subject experts, traditional scholars, educators, and curriculum designers. Without such resources, teachers may struggle to implement IKS integration effectively.

Balancing scientific rigor with traditional knowledge

While IKS encompasses empirically grounded practices and sophisticated theoretical frameworks, not all traditional knowledge claims align seamlessly with modern scientific paradigms. Ensuring scientific rigor while integrating

traditional knowledge systems presents a delicate epistemological challenge. Presenting traditional knowledge uncritically may compromise academic standards; while dismissing it entirely undermines its cultural and historical significance. A balanced approach requires positioning IKS in dialogue with contemporary science, encouraging comparative analysis, critical inquiry, and evidence-based reasoning.

Regional, linguistic, and cultural diversity

Knowledge traditions vary widely across regions and communities, making it challenging to design a uniform national curriculum that is both inclusive and representative. India's immense regional, linguistic, and cultural diversity adds another layer of complexity to IKS integration. Overgeneralization risks marginalizing local traditions, while excessive localization may complicate curriculum coherence. Flexible curricular frameworks that allow for regional adaptation within national guidelines are essential. Multilingual resources and community participation can help address diversity while promoting inclusivity and equity.

Need for continuous monitoring and evaluation

Research-based evaluation frameworks can help identify best practices, address gaps, and guide iterative improvement. Such mechanisms ensure that IKS integration evolves dynamically rather than remaining static or symbolic. Finally, the absence of robust monitoring and evaluation mechanisms can undermine the quality and effectiveness of IKS integration. Continuous assessment of curriculum implementation, teacher preparedness, student learning outcomes, and stakeholder feedback is essential for ensuring relevance and quality.

Conclusion

The integration of the Indian Knowledge System and Vedic educational traditions into the school curriculum, as envisioned under the National Education Policy 2020[10], represents a transformative shift in India's educational philosophy. Integrating the Indian Knowledge System and Vedic education under NEP 2020 [10] offers a transformative opportunity to create a holistic, inclusive, and culturally grounded education system. When implemented with academic rigor, inclusivity, and critical engagement, the integration of IKS can enrich modern education without compromising scientific credibility or global relevance.

With rigorous scholarship, thoughtful pedagogy, and sustained policy support, IKS can enrich modern education and prepare learners for complex global challenges. IKS and Vedic pedagogy offer rich insights into interdisciplinary learning, experiential inquiry, teacher-student relationships, and moral development principles that align closely with contemporary educational goals. If approached thoughtfully, IKS integration has the potential not only to preserve India's intellectual heritage but also to equip learners with the cognitive, ethical, and cultural competencies needed to address complex challenges in an interconnected world. By reconnecting education with indigenous epistemologies, ethical values, and holistic learning practices, NEP 2020 seeks to move beyond fragmented and exam-centric models of schooling. However, realizing this vision requires sustained policy commitment, rigorous scholarship, systematic teacher preparation, innovative curriculum design, and continuous evaluation. The paper recommends developing national curriculum frameworks, investing in teacher capacity building, creating digital repositories, reforming assessment practices, and establishing monitoring mechanisms.

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